

RESPONSE

Support

Applicants have amended claim 1 to specify that component (A) is selected from: (i) the reaction product of a polyisobutenyl succinic anhydride derived from 200 to 1500 molecular weight high vinylidene polyisobutylene and polyethylenepolyamine; (ii) the reaction product of a C12 to C20 alkenylsuccinic anhydride and an alkanolamine; (iii) the reaction product of a mixture of polyisobutenylsuccinic anhydrides derived from 1500 to 3000 and 200 to 1500 molecular weight high vinylidene polyisobutylene, ethylene glycol, and dimethylaminoethanol; and (iv) the reaction product of a polyisobutenylsuccinic anhydrides derived from 1500 to 3000 molecular weight high vinylidene polyisobutylene and heavy polyethylenepolyamines. Support for these amendments is found on page 7, line 27 to page 8, line 20 of the specification.

Claim 1 has also been amended to remove the optional presence of the mineral oil fluidizer. Optional components (B), (C) and (D) have also been removed from the first claim. Support for these amendments comes from the claim itself.

Applicants have added new claim 17, which specifies the presence of component (B) in the nitrogen-containing detergent composition used in the methods of claim 1. Support for this amendment is found in claim 1, as previously presented, and also at page 8, line 21 to page 9, line 25 of the specification.

Applicants have added new claims 18 and 19, which specify the presence of component (C) in the nitrogen-containing detergent composition used in the methods of claim 1. Support for this amendment is found in claim 1, as previously presented, and also at page 9, line 16 to page 10, line 20 of the specification.

Applicants have added new claims 20 and 21, which specify the presence of component (D) in the nitrogen-containing detergent composition used in the methods of claim 1. Support for this amendment is found in claim 1, as previously presented, and also at page 10, line 21 to page 11, line 28 of the specification.

Applicants have cancelled claims 5, 7, 9 and 16.

No other elements of the claims have been amended.

Response

The Examiner rejected claims 1, 3, 5, 7-10, 12-14 and 16 under 35 U.S.C. 103(a) as being unpatentable over Forde et al (US 6,136,051) in combination with Nakazato et al (US 6,569,818). The Examiner also rejected claims 1, 3, 5, 7-10, 12-14 and 16 under 35 U.S.C. 103(a) as being unpatentable over Moreton et al (US

6,514,297) in combination with Peirce-Ruhland et al (US 5,407,453), Bovington et al (US 6,720,293) and Koganei et al (US 6,329,328). Applicants respectfully disagree.

The claims have been amended to focus the claims on the additives of component (A) and to more specifically claim the additives of component (A). Applicants note that the methods of the present invention require the use of additive not specifically taught by the cited references and/or provide benefits not taught or reasonably expected by the cited references. Specifically, the references cited do not teach the specific additives required by the present claims and/or do not teach that the methods of the present invention, when carried out with these additives, provide the unexpected benefits demonstrated by the data in the specification.

The VW Fleet Trial, presented in the specification beginning on page 18, demonstrates these surprising results for the additives of component (A). Specifically, Example A is the reaction product of 1000 molecular weight high vinylidene polyisobutylene succinic anhydride and tetraethylenepentamine, representing component (A)(i) of the present claims. Example A outperforms Example B, a Mannich additive derived from similar materials, as shown by the data and figures presented in the specification.

The Liebherr 914T Engine Test, presented in the specification on page 23, demonstrates these surprising results for the additives of component (A). Specifically, Example E corresponds to component (A)(ii). Example F corresponds to component (A)(iii). Example G corresponds to component (A)(iv). The data from this testing, presented in Figures 7 and 8, shows the unexpected improvement the methods of the present invention provide.

In addition, new claims 17 to 21 require the presence of still more additives, with claims 17, 19 and 21 requiring the presence of specific additives. These additives, specifically components (B), (C), and (D)(i), (D)(ii), (D)(iii) and (D)(iv) are not taught and/or the benefits they provide when used in the methods of the present invention are not taught by the cited references.

The benefits these additives provide, when used in the methods of the present invention, are also demonstrated in the specification.

Conclusion.

For the foregoing reasons it is submitted that the present claims are novel and unobvious over the cited references, and in condition for allowance. The foregoing remarks are believed to be a full and complete response to the outstanding office action. Therefore an early and favorable reconsideration is respectfully requested. If the Examiner believes that only minor issues remain to be resolved, a telephone call to the Undersigned is suggested.

Any required fees or any deficiency or overpayment in fees should be charged or credited to deposit account 12-2275 (The Lubrizol Corporation).

Respectfully submitted,

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